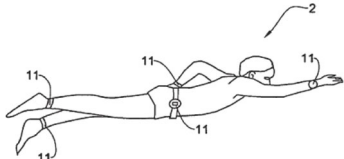
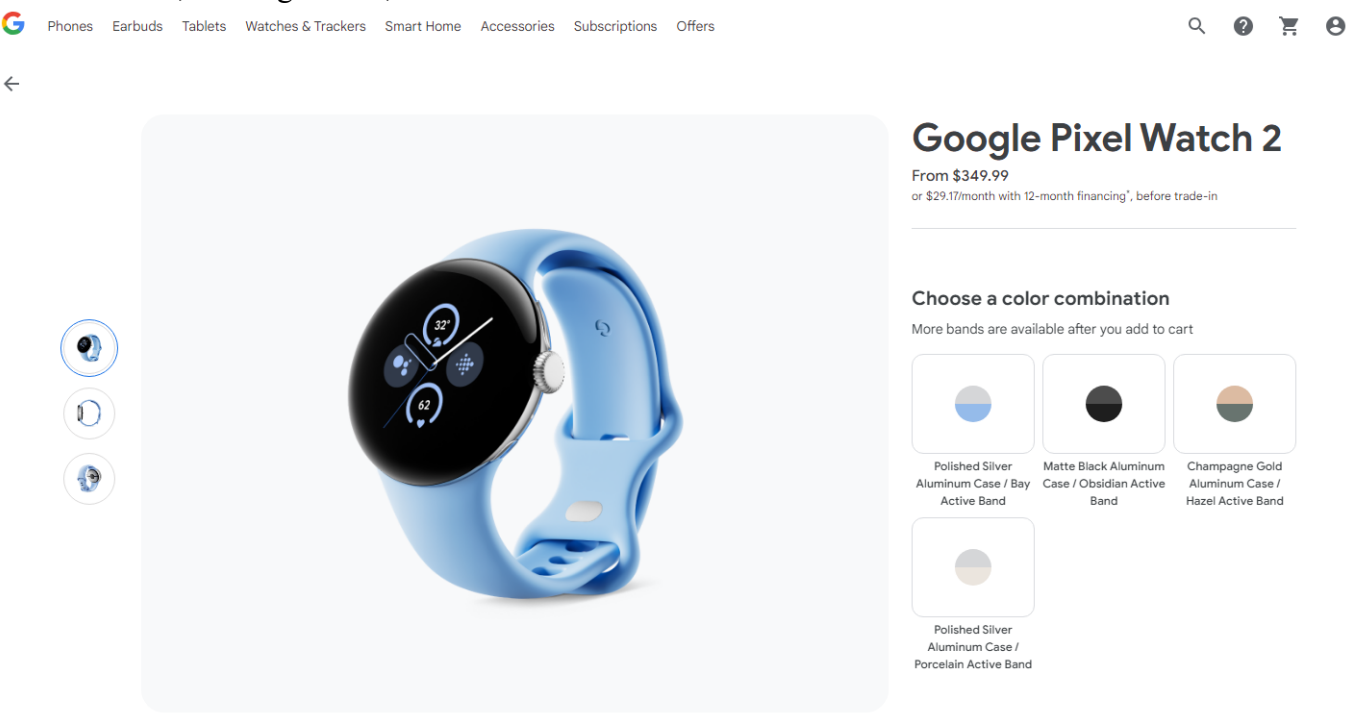


CLAIM CHART

U.S. PATENT NO. 7,980,998 – CLAIM 1

Claimed Limitation	Patent Specification	Corresponding Structure in Accused Systems – Google LLC																																								
1. A personal device for measuring a training activity of a trainee having a body part which moves and changes its location and orientation, during said training activity, this movement at least partially defining said training activity, said device comprising:	<table border="1"><thead><tr><th>Name</th><th>Number of completed laps</th><th>Elapsed time</th><th>Last lap time</th><th>Number of hand strokes per lap</th><th>Number of leg strokes per lap</th><th>Average distance per hand stroke</th><th>Heart rate</th><th>Average height of right hand stroke</th><th>Average height of left hand stroke</th></tr></thead><tbody><tr><td>Lee</td><td>12</td><td>00:05:40</td><td>45</td><td>12</td><td>54</td><td>2.08</td><td>134</td><td>1.3</td><td>0.2</td></tr><tr><td>Mulan</td><td>32</td><td>00:20:40</td><td>35</td><td>14</td><td>65</td><td>1.79</td><td>142</td><td>1.2</td><td>0.15</td></tr><tr><td>Yanez</td><td>11</td><td>00:06:12</td><td>54</td><td>15</td><td>68</td><td>1.67</td><td>145</td><td>1.1</td><td>0.1</td></tr></tbody></table> <p>FIG. 5</p> 	Name	Number of completed laps	Elapsed time	Last lap time	Number of hand strokes per lap	Number of leg strokes per lap	Average distance per hand stroke	Heart rate	Average height of right hand stroke	Average height of left hand stroke	Lee	12	00:05:40	45	12	54	2.08	134	1.3	0.2	Mulan	32	00:20:40	35	14	65	1.79	142	1.2	0.15	Yanez	11	00:06:12	54	15	68	1.67	145	1.1	0.1	<p>Google LLC (“Google”) sells the Google Pixel Watch 2 and 3. The Google Pixel Watches are wearable fitness tracker, training device, and watch.</p>  <p>Source: (Google Pixel Watch Buy Page)</p>
Name	Number of completed laps	Elapsed time	Last lap time	Number of hand strokes per lap	Number of leg strokes per lap	Average distance per hand stroke	Heart rate	Average height of right hand stroke	Average height of left hand stroke																																	
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Yanez	11	00:06:12	54	15	68	1.67	145	1.1	0.1																																	

(a) a sensing unit adapted to repeatedly measure, during said training activity, parameters associated with the movement of said body part and characterizing the location and orientation of said body part relative to its initial location and orientation,

“The device is particularly useful for **automatic measuring repetitive activity**, in which case said processor may be adapted to calculate the periodicity of said activity based on parameters received from the sensing unit.” Col. 4 ll. 27-30

The Google Pixel Watch 2 and 3 contain sensors, comprising a sensing unit, within the watch body of the device.

Sensors

Compass

Altimeter

Red and infrared sensors for oxygen saturation (SpO2) monitoring⁷

Multipurpose electrical sensors compatible with ECG app⁸

Multi-path optical heart rate sensor⁹

3-axis accelerometer

Gyroscope

Ambient light sensor

Electrical sensor to measure skin conductance (cEDA) for body response tracking

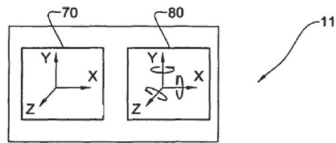
Skin temperature sensor¹⁰

Barometer

Magnetometer

Source: (Google Pixel Watch Specs)

and wherein said sensing unit comprising at least accelerometer means,



The Google Pixel Watches contain a 3-axis accelerometer.

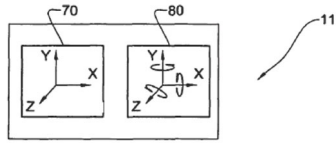
Sensors

- Compass
- Altimeter
- Red and infrared sensors for oxygen saturation (SpO2) monitoring⁷
- Multipurpose electrical sensors compatible with ECG app⁸
- Multi-path optical heart rate sensor⁹
- 3-axis accelerometer**
- Gyroscope
- Ambient light sensor
- Electrical sensor to measure skin conductance (cEDA) for body response tracking
- Skin temperature sensor¹⁰
- Barometer
- Magnetometer

Source: (Google Pixel Watch Specs)

<p>a compass and</p>		<p>The Google Pixel Watches contain a compass and magnetometer.</p> <p>Sensors</p> <ul style="list-style-type: none"> Compass Altimeter Red and infrared sensors for oxygen saturation (SpO2) monitoring⁷ Multipurpose electrical sensors compatible with ECG app⁸ Multi-path optical heart rate sensor⁹ 3-axis accelerometer Gyroscope Ambient light sensor Electrical sensor to measure skin conductance (cEDA) for body response tracking Skin temperature sensor¹⁰ Barometer Magnetometer <p>Source: (Google Pixel Watch Specs)</p>
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optionally gyroscope means,



The Google Pixel Watches contain a gyroscope.

Sensors

Compass

Altimeter

Red and infrared sensors for oxygen saturation (SpO2) monitoring⁷

Multipurpose electrical sensors compatible with ECG app⁸

Multi-path optical heart rate sensor⁹

3-axis accelerometer

Gyroscope

Ambient light sensor

Electrical sensor to measure skin conductance (cEDA) for body response tracking

Skin temperature sensor¹⁰

Barometer

Magnetometer

Source: (Google Pixel Watch Specs)

said accelerometer means being adapted to measure linear acceleration of said body part along three axes,

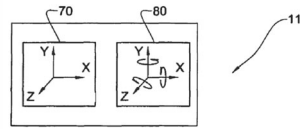


FIG. 2B

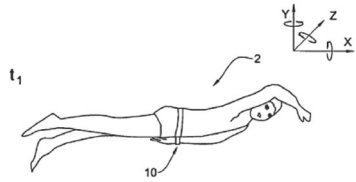
The Google Pixel Watches contain a 3-axis accelerometer.

Sensors

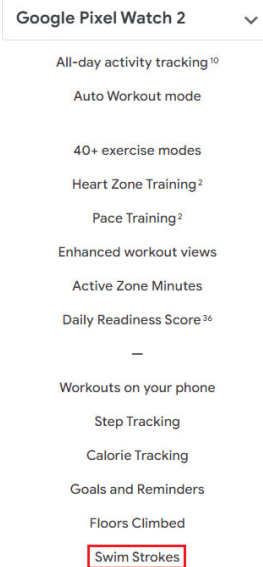
- Compass
- Altimeter
- Red and infrared sensors for oxygen saturation (SpO2) monitoring⁷
- Multipurpose electrical sensors compatible with ECG app⁸
- Multi-path optical heart rate sensor⁹
- 3-axis accelerometer**
- Gyroscope
- Ambient light sensor
- Electrical sensor to measure skin conductance (cEDA) for body response tracking
- Skin temperature sensor¹⁰
- Barometer
- Magnetometer

Source: (Google Pixel Watch Specs)

said gyroscope means being adapted to measure angular acceleration of said body part around said three axes, and said parameters being at least linear and angular acceleration values;



The Google Pixel Watch 2 can detect strokes while the user is swimming, which implies that the gyroscope in the Google Pixel Watch 2 tracks angular acceleration along three axes. This is accomplished either by the Google Pixel Watch 2's gyroscope being three axis, or through it being adapted to measure three-axis angular acceleration through combining data with the 3D compass.



Source: (Google Pixel Watch Compare)

means for attaching the sensing unit to said body part; and

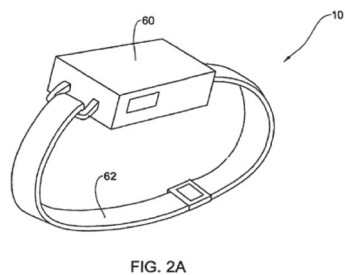


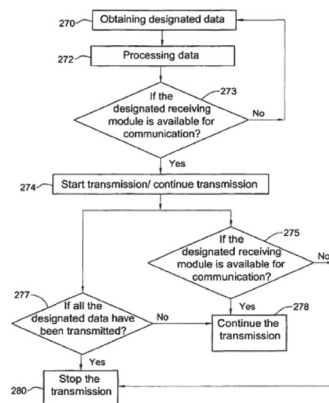
FIG. 2A

The Google Pixel Watches attach to a trainee's arm by way of the watch band. The sensing unit is contained within the Google Pixel Watch in the body of the watch. The watch band attaches the watch body to the user's arm.



Source: (Google Pixel Watch Specs)

a processor adapted to receive from the sensing unit said parameters, and to calculate based thereon, data indicative of said training activity, said data including at least the location and orientation of said body part for each of the measurements.



The Google Pixel Watches contain a processor within the body of the watch. The processor receives and calculates position and orientation data based on the training activity, which allows the Google Pixel Watch to display data for the training activity such as swim strokes.

Google Pixel Watch 2 Overview [Tech specs](#) Compare

Chip

Qualcomm 5100

Cortex M33 co-processor

Source: (Google Pixel Watch Specs)